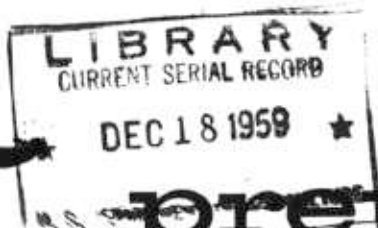


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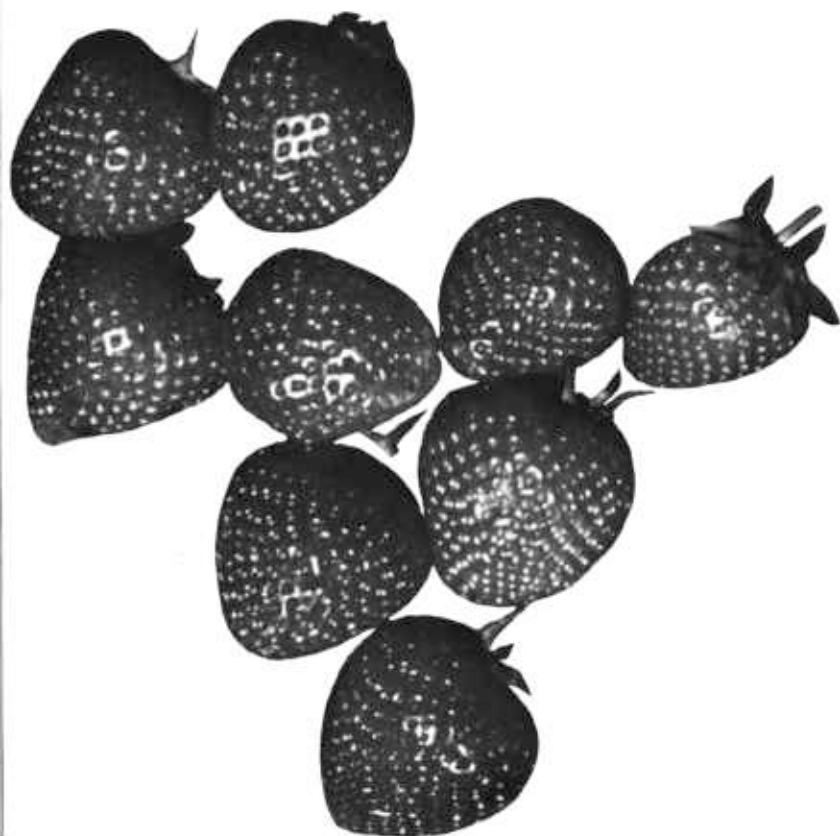
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984F
Cop. 3



FARMERS' BULLETIN NO. 1560

preparing strawberries for market



U.S. DEPARTMENT OF AGRICULTURE

SOME POINTERS FOR PROFIT

- Grow the varieties best adapted to your community.
- Arrange early for enough capable help.
- Pick for quality fruit at best stage of maturity.
- Closely supervise picking and grading.
- Grade to U.S. Standards.
- Have fruit officially inspected before shipping.
- Use best types of market containers.
- Use efficient shipping facilities—motortrucks, rail, air.
- Sell for profit.

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WASHINGTON, D.C.

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PREPARING STRAWBERRIES FOR MARKET

*By W. W. Morrison**



The commercial strawberry industry has changed greatly in recent years. Market volume of fresh berries has remained relatively stable, while the volume used for processing has more than doubled. About half the annual production now reaches consumers as fresh fruit.

Consumers want fresh berries of high quality—firm, ripe, flavorful fruit. To satisfy this demand, growers and shippers must continually

seek improvement in methods of harvesting, packaging, and shipping strawberries to market.

More and more growers and dealers find value, also, in the use of standard grades in marketing strawberries: growers, in preparing the fruit for market; dealers, in the purchase and sale of berries, and as a basis for official inspection at shipping points and terminal markets.

STRAWBERRIES FOR FRESH USE

Your success in marketing fresh strawberries will depend largely on proper picking, grading, and packaging. You will find that strawberries of a dependable grade and quality are in greater demand and bring higher prices. The best of marketing facilities cannot overcome the handicap of poor handling or delay before or during shipment. Good prices are seldom obtained for an inferior product. Growers and grower organizations in cooperation with shippers and distributors should continually improve handling, packaging, and shipping methods.

Growers and shippers in many States are making notable progress in

delivering superior strawberries to consumers.

Outstanding efforts have been made by California growers and shippers to put quality fruit on the markets. They stress rapid removal of berries from field to coolers, they have installed new and larger precooling equipment, mechanical handling is general, and heavy emphasis is placed on what to ship and what not to ship.

In California's principal growing areas, the production of strawberries is a specialized, one-crop vocation. And for shippers, the marketing of strawberries is a primary concern for more than 6 months each year. Each shipper or growers' shipping association either owns a freezing plant or has close working arrangements with such an alternative outlet. Only the best berries go to fresh market; the remainder are processed.

*Mr Morrison is a Marketing Specialist, Fruit and Vegetable Division, Agricultural Marketing Service.



N-29641

California growers and shippers cut costs by using mechanical equipment. Berries are trucked without delay from fields to cooling plants; fork lifts are used to remove crates from trucks . . .



N-29645

. . . and to stack the berries in cooling rooms.

STRAWBERRIES FOR FREEZING

Growers in some locations sell a large part of their production for processing—principally for freezing. The production from large areas in western Washington and Oregon is used almost entirely for freezing. About 90 percent of all berries grown in these two States are usually processed by freezing plants.

The proportion of the California crop used for freezing varies by season—particularly in relation to prices available from fresh marketing as compared with those from freezing outlets—and usually averages from over 50 to about 70 percent. Growers in other areas also sell varying portions of their crop to processors.

Demand for fruit for freezing is increasing in many strawberry-growing districts. Prices normally are lower than for berries for fresh consumption, but costs may be lower, too. In making your sales decision, study the price differentials as between fresh market and processing outlets. Weather and other consid-

erations such as comparative costs of picking and preparing berries for market also may be decisive factors.

Pick berries for freezing or other processing without caps or stems. These berries may be more advanced and somewhat more variable in maturity than those for fresh shipment. Some processors use berries that have been discarded from fresh packs because of minor defects. Remove stems and caps before delivering such fruit to processing plants.

Usually, you will find that harvesting fruit for processing is less expensive than for fresh shipment. Less care is needed in picking and handling the berries; any handy reusable picking containers may be used. Also, the cost of small baskets and shipping crates or cartons is eliminated.

At processing plants, the berries are washed mechanically, hand sorted, and often mechanically sized before freezing.

HARVESTING THE CROP

Whether your berries are to be marketed fresh or frozen, you should see that proper picking methods are used, and carefully supervise the entire operation.

LABOR SUPPLY

In most places, you can hire members of neighboring families or people from nearby towns to harvest berries as they ripen. Capable teenagers may be available. Usually, you will find local or nearby residents preferable to transient labor; though in harvesting a large acreage you may have to obtain outside help. Many growers supply transportation for workers from nearest towns or cities.

In many places, transient families employed to pick berries are supplied

housing or camping facilities. In some, transient Negroes and Mexicans are hired. In large growing districts in the Northwest, labor camps are maintained for Mexicans and Indians.

Transient laborers may be inclined to move on to other locations after the height of the season. To induce pickers to stay until the end of harvesting, some growers offer a premium or bonus in addition to the regular picking rates.

Various methods of giving pickers credit for their work may be used. Some common methods are the use of large tickets punched to show quantities picked, the issuance of small tickets or tokens to designate the number of baskets or trays, the keeping of records for each picker,



N-27215

Berries are sorted by hand on conveyor-type belts in this California processing plant. Culls and unripe berries are washed away in the narrow troughs, or flumes, at both sides of the belt. The workers trim any remaining "caps" on the berries.

or the making of cash payment as filled carriers or trays are delivered to the packing or shipping shed.

PICKING METHODS

In most areas, fields usually are picked every other day. But when berries are ripening rapidly, picking every day may be necessary. In large growing areas in Washington and Oregon, where practically all berries are grown for freezing, fields are picked every third or fourth day. In any location, weather conditions will naturally slow down or speed up the frequency of picking.

The proper stage of ripeness for picking depends on the variety of berries grown, temperature, cooling facilities, distance to market, and whether the berries are intended for fresh market shipment or for processing.

Berries for processing or for local markets can be allowed to ripen more fully than those intended for distant markets.

For fresh shipment, varieties that are naturally firm can safely be allowed to attain full red color. Varieties that soften quickly when ripe must be picked before reaching full red color. Varieties that soften quickly are not suitable for long-distance shipment. In hot weather, you should have berries picked in the coolest part of the day.

Naturally, all berries cannot be picked at the same stage of ripeness. Careful timing of pickings, the employment of capable workers, and proper supervision will reduce variation in color and firmness to a minimum and yield a more uniform and desirable product.

Pick strawberries when they are firm enough to be transported and distributed successfully to consumers. You will find that well-colored, firm berries sell faster and at better prices than those showing poor color.

Berries for marketing as fresh fruit should be picked by pinching off the stem of each berry between the thumb and forefinger. A portion

of stem about three-eighths to one-half inch should be left on each berry. Each row should be picked clean of all berries that are ready for picking; otherwise, the next picking will contain overripe fruit which is susceptible to rapid deterioration.

Berries should be placed carefully in containers. To gain speed, pickers tend to pull or snatch the berries from the plant and toss or drop them into the baskets, or to bruise berries by holding too many in the hand at one time. Pickers frequently cause much unnecessary handling and consequent bruising by overfilling baskets or field carriers with fruit which must then be transferred to other containers. Bruised berries and berries without caps and stems do not carry well to market.

FIELD CARRIERS

In most places, pickers use hand carriers or trays for carrying baskets in the field. A new type of container called the ventilated picking lug has been designed and tested by Michigan State University. It was developed primarily as a picking carrier for berries destined for processing, but may also be used as a picking carrier for berries for fresh market. It has a removable handle, and a design which allows good ventilation.

Whatever type of container you use, carriers for berries for fresh shipment should be substantially built, but light in weight, and constructed so that baskets fit snugly. The carriers should be delivered to the packing or shipping shed as soon as filled to avoid overexposure of the fruit. Sun, rain, or dust are injurious to picked berries whether in the field or during later handling. Some growers have laborers collect berries from pickers in the field as fast as carriers are filled.

In California, berries generally are picked direct into baskets in a 12-pint fiberboard shipping tray. This eliminates rehandling of individual baskets from carriers to crates or to other shipping containers.



This picking carrier holds 6 American-type baskets. Other common types hold 6 or 8 quart baskets or 8 or 12 pint baskets.

M-3772



This "ventilated picking lug" developed in Michigan is adaptable for holding berries in bulk for processing, or baskets for fresh market. Note vertical grooves in ends for holding removable metal handle in upright position.

BN-4129



N-29395

Most California growers combine picking, grading, and packing by having pickers place berries directly into baskets, contained in fiberboard shipping trays. Note unique field conveyor.

SUPERVISION

Proper supervision of pickers is important because strawberries are easily damaged. Shipping quality of the berries will depend largely upon the efficiency of persons in charge of the pickers.

On small farms, the grower or some member of his family usually supervises the picking, but on large farms where many pickers are needed, hired field bosses or foremen usually are placed in charge. These supervisors assign rows to pickers, check the work to make sure that no ripe berries are left unpicked, that the num-

ber of green or otherwise defective berries placed in containers is held to a minimum, and that pickers do not trample the rows.

In some places, pickers work between rows, picking half the row on either side. This prevents damage to plants and to unpicked berries. Depending on the type of laborers employed, the condition of the crop, weather, and the rate of ripening, a foreman can usually supervise 20 to 50 pickers. You, as grower, also can spend much time advantageously in general supervision of picking, grading, packaging, and loading fruit for shipment.

GRADING

Grading consists of separating undesirable or cull berries from the better fruit. Strawberries for fresh shipment should be graded either while they are being picked or by hand-sorting the individual berries

after they are picked. The method most satisfactory to you will depend on the general quality of the crop, the degree of care in picking, growing practices, and weather. Any extra handling may impair the keeping



CAL-6320

These pickers working between rows find one-half of each adjacent row easily accessible.

quality of the berries. But often hand grading after picking is both necessary and profitable.

baskets and are commonly called fibre trays. Some wooden trays also are used.

IN THE FIELD

Grading in the field by pickers requires the least handling but can only be entirely successful when strictly supervised or done by conscientious, reliable, and experienced workers. In Alabama, Michigan, Illinois, Virginia, and Maryland, most berries are graded by pickers only, the filled baskets usually being inspected and classified by the grower or other supervisor.

The California crop is graded by pickers only. Baskets are placed in shipping trays and berries are picked directly into these units. Neither berries nor baskets are removed until they arrive at the retail store. The shipping trays, constructed of corrugated fiberboard, hold 12 pint

AT PACKING SHEDS

In many important growing districts, berries are graded at packing sheds. There the berries are removed from the baskets used in picking and are sorted before being returned to the same baskets or transferred to other baskets.

One method is "pan grading." Each box of field-run berries is emptied into a specially constructed tin grading pan. The fruit is then slowly poured back into the basket and berries that do not meet the desired grade are removed. When carefully done this is an excellent grading method. Grading belts that carry loose fruit past the graders for segregation of undesirable berries also are used.



PMA-18696

Tin grading pan used in some areas for grading or inspecting strawberries.

Berries produced in Louisiana, Florida, North Carolina, Arkansas, Missouri, Tennessee, Kentucky, Illinois, and Indiana usually are hand graded at the packing shed.

Whether or not berries are hand graded after picking, they should be

segregated before shipment to eliminate wide variations in size or quality in individual baskets in any one shipping container. Crates or other packages also should be selectively segregated to avoid undesirable variations within lots.

STANDARDIZED GRADES

Standardized grades, properly and consistently used, promote honesty and fair dealing. They enable conscientious growers and shippers to realize a premium for care, honesty, and good judgment. They provide a common language to describe quality, maturity, size, condition, and other factors that determine the value of a given shipment. They serve as a convenient, fair, and understandable basis for inspection at shipping points and in receiving markets, for price quotations, for sales, for adjustments of claims, for cooperative pooling, for financing, and for the reporting and intelligent comparison of market prices.

Every producing section needs uniform grades. Official U.S. grades issued by the Department of Agriculture have been developed to meet these needs. The value of standard grades depends upon their specifications and the extent to which growers, shippers and dealers use them.

United States Department of Agriculture grades for strawberries have attained extensive use. "U.S. Standards for Strawberries" are used for berries that reach the consumer in the fresh form. "U.S. Standards for Growers' Stock Strawberries for Manufacture" and "U.S. Standards for Washed and Sorted Strawberries for Freezing" are used for berries to

be processed. Grade requirements in these standards have the same interpretation wherever the grades are used in the United States.

A primary requisite for a good grade of berries intended for fresh marketing is that berries must be firm enough to carry to market. Overripe berries usually become soft, moldy, or decayed by the time they reach the consumer. Immature and green berries also seriously affect appearance and general quality.

You should discard berries damaged by bruising, crushing, cuts, dirt, sand, or mold, and berries without caps. In one Florida district berries are washed to remove dirt and sand. Cold water is an aid to cooling the fruit but water must be

changed often to avoid spreading decay organisms. Washing is usually considered slightly detrimental, but under some circumstances may be quite necessary.

The size of fresh strawberries is basically important. Size varies with the variety, weather, cultural practices, and the locality where the berries are grown. Usually, the trade prefers berries not less than three-fourths inch in diameter. A reasonable variation in size within baskets is expected, yet careful attention is needed to prevent unattractive size differences.

Varieties should not be mixed in baskets or crates since this results in variable appearance and differences in shipping and eating quality.

PACKING

Properly filled strawberry baskets are neither slack nor so full that berries are likely to be crushed. The baskets should be full enough to look attractive to consumers. Most growers fill baskets well but some try to increase profits by slack filling. Underfilled baskets are hard to sell. Growers who put out such a product eventually lose money. Baskets in the lower layers of any crate should be as well filled as those in the top layer.

In Louisiana, Florida, and North Carolina, baskets generally are face packed. This consists of placing berries in the top layer on their sides, all pointed one way; or placing each berry in the top layer with the stem down. In other areas some of the shipments may be face-packed.

"Facing" makes an attractive package. This may be desirable if the extra labor cost is warranted by the selling price and the berries on the face of the basket are reasonably representative of the entire contents. Some States have laws to prevent "facing" baskets with berries not representative of the remainder of the contents.

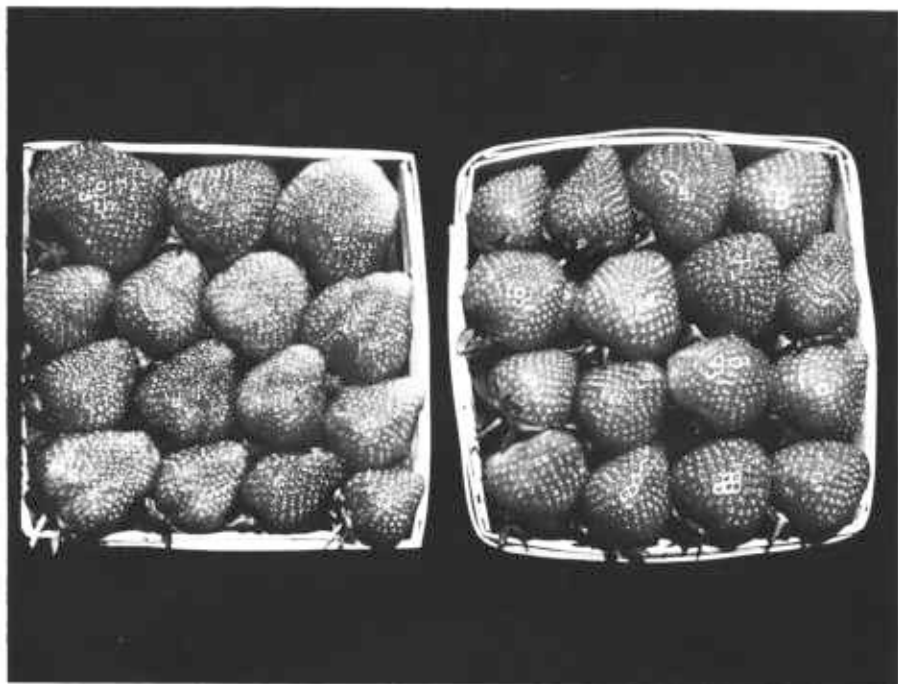
PACKING OR SHIPPING SHEDS

If your berries are graded and packed after picking, careful supervision at the packing shed is of primary importance. Good supervision not only results in a uniform grade and pack; it also serves as a check on the competence of those in charge of the picking.

Work at the packing shed includes receipting for the berries delivered by the pickers, grading or classifying, packing, placing baskets in crates and marking and closing crates. If your acreage is small, this work may be done by you or members of your family; if your acreage is large, assign specialized employees to the various operations.

Locate the packing or shipping shed at a place easily accessible to the pickers, so that they will not have to walk far to deliver the fruit, nor be tempted to walk across rows. The sheds should also be accessible to trucks or other transportation.

Packing or shipping shed facilities vary from the shade of a tree, to a porch, a tent, a temporary shed, or a permanent-type shed. The most



M-4028

Your market is assured if you can match this for high quality. These are typical faced packs of two different varieties in American-type baskets.

common type is a cheaply constructed, board-roofed shed with or without boarded sides. Cheaply constructed temporary types predominate because of frequent relocations of plantings in many districts and the short season during which most sheds are used. Where the same facilities can be conveniently used for other products, or the strawberry season is long, a permanent packing or shipping shed may be advisable and profitable.

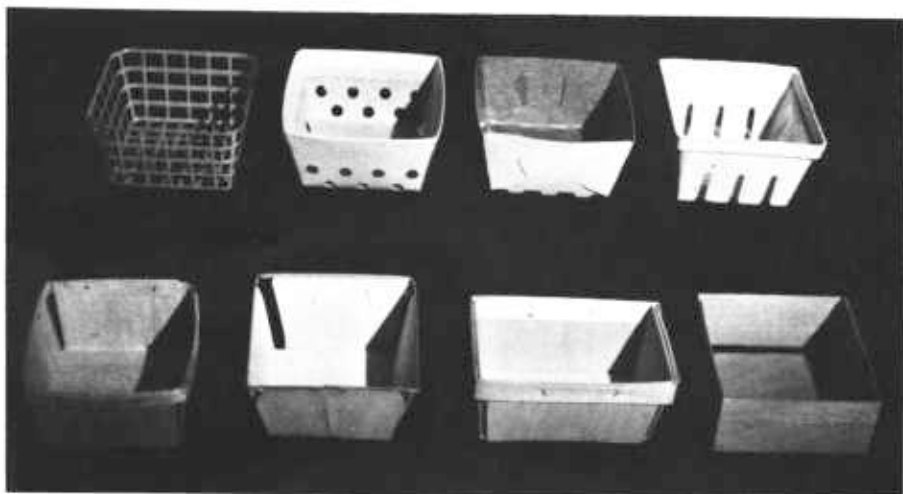
MARKET CONTAINERS

The small containers in which fresh strawberries are marketed are known as baskets, boxes, cups, hallocks or tills. In this bulletin they are called baskets. The United States Standard Container Act of 1916 provides for three legal sizes of baskets for interstate shipment. The legal sizes are the quart, pint, and one-half pint based on dry measure. There are no fixed standard dimensions.

Pint or quart sizes are usually used for strawberries and are made in several types.

The American type, of wood veneer with slanting sides and bound at the top with wooden bands, is used extensively in the South, East, and Middle West. Metal-rim baskets differ from the American type in that they are bound at the top with metal strips. These are used in some areas. In Florida, oblong wood-rim baskets of 1-pint capacity are used almost exclusively.

Hallocks, also of wood veneer, but with vertical sides, are used in a few producing sections. Ventilated plastic baskets are rapidly replacing other types in some areas, and are being used experimentally in many others. Fiberboard and pressed pulp, generally made with ventilating apertures, are used in various localities. Both plastic and fiberboard baskets are usually made in the same shapes as the American and metal-rim types.



BN-6932

Various types of baskets are used for strawberries. Top row left to right: plastic, fiberboard with collar, folding fiberboard, molded paper pulp. Bottom row left to right: (all are wood veneer) American, metal-rim, oblong, Hallock.

Special shipping crates, trays, and cartons have been developed to hold different types and sizes of baskets. Louisiana growers generally use the 24-pint wirebound display crate with American type boxes, but some experimental shipments are being made in fiber board trays. The oblong, pint veneer type baskets used in Florida are customarily packed in a 24-pint crate. Growers in Alabama, North Carolina, Tennessee, Kentucky, Virginia, Maryland, Arkansas and Missouri generally use 16- or 24-quart ventilated crates of various types.

Shippers in Michigan, Illinois, and Indiana use 16-quart wood crates almost exclusively; the baskets most commonly are of wood veneer. Washington and Oregon shippers usually use nailed wooden crates holding 12 or 24 pints. Most California shippers use 12-pint fiberboard shipping cartons, with plastic or fiberboard baskets, particularly for interstate shipments. Some wooden crates continue to be used there, mostly for shipment to local or nearby markets.

Regardless of the type of basket, crate, or carton used, you should try to pack your product in clean, neat containers so constructed as to minimize damage in transit to market. The appearance of the container may materially increase or decrease the value of your product.



PMA-17938

This 24-pint display crate is used in Louisiana.

BRANDING AND MARKING

Many strawberry-shipping associations and individual shippers use brand labels or printed brands on crates, particularly for the better grades, but in most districts labeling or printed branding is not common practice. Most States require that the grower's name and address be stamped on crates. Variety and

grade designations also are required in some States. A grade designation is often shown on shipping containers even in areas where grade designation is not mandatory.

Proper stamping and branding or labeling are generally considered good practice in building a reputation for a desirable product.



N-629

Have your berries officially inspected for grade. North Carolina grower (left) and inspector (right) seem pleased with this fruit.

Form FV-47 (Louisiana)
(2-24-56)UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LOUISIANA DEPARTMENT OF AGRICULTURE AND IMMIGRATION

INSPECTION CERTIFICATE

C 24987

This certificate is issued pursuant to the Agricultural Marketing Act of 1946, as amended, (7 U.S.C. 1621, et seq.) and the Statutes of the State of Louisiana and is admissible as prima facie evidence in all courts of the United States and Louisiana. WARNING: Any person who knowingly shall falsely make, issue, alter, forge, or counterfeit this certificate, or participate in any such actions, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both.

Inspection point Hammond, La. Kind of car Express Refrigerator Car Initials and number REX 7594

Inspection begun 9:15 A.M., April 10, 1958 Completed 2:10 P.M., April 10, 1958
(Hour, date) (Hour, date)

Applicant Simpson Sales Agency Address Hammond, La.

Shipper Same Address Same

I, the undersigned, on the date above specified made personal inspection of samples of the lot of products herein described, and do hereby certify that the quality and/or condition, at the said time and on said date, pertaining to such products, as shown by said samples, were as stated below:

Condition of car: Hatch covers closed, plugs in, bunkers full of ice.

Products: Strawberries in 24 pint ventilated crates labeled "D \$ D Brand" and generally showing various growers' names. Loader's count 704 crates.

Loading: Divided 8 rows, spaced between rows, 4 layers. Each layer stripped, top strips nailed, center braced.

Pack: Cups generally well filled, faced.

Size: Medium to large, mostly medium. Undersize well within tolerance.

Quality and condition: Berries generally ripe, firm, and clean; mostly well, some well colored. Grade defects average within tolerance. Average less than 1/2 of 1% decay.

Grade: U. S. No. 1.

Fee 7.04
Expenses _____
Total _____

John Doe Inspector
John Doe

PLEASE REFER TO THIS CERTIFICATE BY NUMBER

☆ U. S. GOVERNMENT PRINTING OFFICE: 1957—419148

BN-6974X

A Federal-State inspection certificate showing the grade, condition, and description of a shipment.

INSPECTION

Many growers and shippers in the principal producing districts have their strawberries inspected at shipping point by Federal-State inspectors. The shipping point inspection service is operated under a cooperative arrangement between Federal and State authorities. The product is classified in accordance with U.S. Standards. Certificates describing the quality, condition, grade, pack, and any other important factors relating to the various lots of fruit for which inspection is requested or required are issued by licensed inspectors. These certificates are receivable as prima facie evidence in any United States Court, and are generally accepted as a basis for buying and selling, and in settlement of allowances,

rejections or claims. The inspection fee is only enough to cover expenses. Inspectors are not financially interested in the product; they are licensed by the United States Department of Agriculture.

In some producing areas, berries are inspected by association inspectors or by representatives of buyers or distributors as a means of maintaining a dependable product.

Consistent, impartial, dependable inspection and grade designation serve to eliminate misunderstandings, deception, and dishonest packing. It also encourages the production of high-quality fruit, and reduces loss and waste by preventing shipment of inferior fruit.

SHIPMENT

In most producing areas refrigerated trucks are used to a much greater extent than rail shipment. Whatever shipping method is used—motor-truck, rail, or air—delay in loading and shipping should be avoided. Any delay at shipping point will result in reducing the carrying quality of the fruit, and is particularly detrimental if the berries are not precooled soon after picking, and then maintained at temperatures below 40° F. until arrival at destination markets.

MOTOR TRUCKS

In many localities practically all strawberries are shipped by motor-truck. Strawberries for truck shipment may be collected at some central location at shipping point and moved directly to the receiver. Because of this direct movement, truck delivery generally is faster than rail shipment, and usually eliminates excessive handling. Truck shipment also facilitates the movement of less-than-carload lots to various markets

along any given route and to many smaller markets difficult to reach by carlot shipment.

RAIL

As in various other procedures in handling strawberries for fresh use, California shipping practices differ from those of most other States. In 1957 about 82 percent of the strawberries moving in interstate shipment from the important central California area was shipped by rail, refrigerated-express. Only about 17 percent was shipped by refrigerated truck; and 1 percent by air freight. Shipping distances from California to eastern consuming markets are the principal factor in the choice of transportation facilities. For distances of 1,000 miles or less, refrigerated truck shipments are common. Even for much longer distances, truck shipment appears to be gaining in favor.

In several other shipping areas, lesser percentages of the crop are moved to markets in rail carlots. The cars



S-22378-C

Loading a refrigerated truck in Florida.

are refrigerated and usually equipped with built-in fans to properly distribute the cold air through the load. Salt may be added to the bunker ice to maintain low temperatures.

When berries have not been precooled before loading, they may be precooled after loading with portable precooling equipment and car fans. Temperature of the fruit is brought to approximately 40° F. before shipment.

Some shippers use dry ice, or solid carbon dioxide, to increase refrigeration and inhibit decay in long-distance shipments. California shippers often use it in express car shipments.

Usually about 1,000 pounds of dry ice is placed on the load brace, and some put in the bunkers on top of the regular ice for a quick buildup of carbon dioxide.

LOADING

In carload lots the primary objectives are to prevent crates or other shipping containers from shifting in

transit and at the same time to allow for essential circulation of cold air to all parts of the load. Crates are usually loaded in rows across the car with the long side parallel to the side of the car, but with enough space between the rows to ensure free circulation of air. Each layer in the stack must be stripped crosswise to prevent crates from shifting toward either side. All loads are center-braced.

The fiberboard trays used in California are loaded with the long side of trays parallel to the end of the car. Individual trays are prevented from shifting by wire handles that fit into trays above as the trays are stacked. Proper loading and bracing of carlots are particularly important and require the most careful attention.

Truck loading methods vary greatly because of differences in types and sizes of trucks. Drivers or other employees of the truck owners generally load the shipments in accordance with methods which experience has proved most practical to minimize



N-29647

Loading an express refrigerator car in California. Note fan equipment at end of car and wire handles on trays which protrude into specially designed space in each tray above the bottom layer thus preventing transit shifting of individual trays.



N-29391

California strawberries being loaded in aluminum shipping case for air shipment. The case holds 152 flats.

damage and facilitate ventilation and cooling. These employees are held responsible for safe delivery.

STANDARD LOADS

Standard loads for different districts vary according to container types. In Louisiana, the 24-pint wire-bound display crates are loaded in cars in a divided, lengthwise arrangement, stripped and spaced, with as many as 7 or 8 layers.

In Illinois, the generally used 16-quart wooden crates are loaded in cars lengthwise 7 rows, 5 layers, 10 stacks one end, 9 stacks other end, divided by a center brace. Trucks usually carry a through load 7 rows, 6 layers.

The usual carload in California consists of 1320 flats, loaded 5 rows

wide and 8 layers high, or 1308 flats, 5 rows wide, and 6 and 7 layers high.

Many other loading methods are used in different areas to accommodate the types of containers used, the size of lots being shipped, and the objectives of shippers. Some shippers are experimenting with spacing strips between stacks to improve air circulation.

AIR FREIGHT

Some strawberries are shipped by air. These shipments are often in relatively small quantities prepared to reach markets for special purposes, although occasionally larger quantities are shipped by air, particularly early in the season.

METHODS OF SELLING

Varying sales methods have been developed in the different producing areas. In some, strawberries are sold at shipping point auction, with sales based on U.S. grades. In a few, notably in California, sales are made by shippers on an F.O.B. basis, or shipments are consigned to receivers.

In most shipping areas, sales are made by shipping association managers, sales agents, brokers, or direct by growers to on-the-spot buyers, and are generally based on U.S. grades. When U.S. grades are not used, buyers must rely on their own judgment, or on confidence in growers or shippers as to the quality of the product.

GROW BEST VARIETIES

Many varieties of strawberries are available for commercial production. Research continues to yield new varieties adaptable to various climates and soils, and resistant to many of the more serious plant diseases.

California growers, using Shasta and Lassen varieties developed by University of California plant breeders, get yields double those of varieties previously grown. The State average in 1958 was nearly 13,000 pounds per acre—well over twice the per acre average of any other State. Fruiting period of Shasta and Lassen varieties in central coastal California extends for

about 7 months, beginning with fair volume in April and ending in late November.

Michigan growers have increased yields by using more irrigation. . . . Oregon and Washington growers have boosted yields through larger plantings of the Northwest variety, which produces more heavily than the long-favored Marshall.

Wherever you are, grow the varieties best adapted to your local conditions. For detailed and comprehensive information on strawberry varieties see U.S. Department of Agriculture Farmers' Bulletin No. 1043, "Strawberry Varieties in the United States."